

In the Claims

1-49. (Canceled)

50. (Currently amended) An isolated polypeptide comprising the amino acid sequence of SEQ ID NO: 2.

51. (Previously presented) The polypeptide according to claim 50, wherein said polypeptide binds to the By subunit of the PP2A phosphatase.

52. (Currently amended) An isolated potassium channel comprising at least one polypeptide comprising the amino acid sequence of SEQ ID NO: 2.

53. (Withdrawn) The isolated potassium channel according to claim 52, wherein said potassium channel is a homomeric channel comprising a plurality of polypeptides.

54. (Previously presented) A purified polynucleotide encoding the polypeptide of SEQ ID NO: 2, or a polynucleotide fully complementary thereto.

55. (Currently amended) The polynucleotide according to claim 54, wherein said polynucleotide comprises the polynucleotide sequence of SEQ ID NO: 1 or a polynucleotide fully complementary thereto.

56. (Currently amended) ~~An expression vector~~ A vector comprising a polynucleotide encoding the polypeptide of SEQ ID NO: 2 ~~the polynucleotide of claim 54.~~

57. (Canceled)

58. (Currently amended) A host cell comprising the expression vector a vector that comprises a polynucleotide encoding the polypeptide of SEQ ID NO: 2 of claim 56.

59. (Currently amended) A method of making a polypeptide, said method comprising the steps of culturing a host cell comprising a vector that comprises a polynucleotide encoding the polypeptide of SEQ ID NO: 2 according to claim 58 under conditions suitable for the production of a polypeptide comprising SEQ ID NO: 2.

60. (Currently amended) The method according to claim 59, further comprising the step of purifying said polypeptide comprising SEQ ID NO: 2 from the culture.

61. (Canceled)

62. (Withdrawn) A method of screening candidate compounds for a modulator of the KCNQ2 polypeptide comprising the steps of:

- a) contacting a KCNQ2 polypeptide comprising SEQ ID NO: 2 with a candidate compound; and
- b) testing the activity of said KCNQ2 polypeptide in the presence of said candidate compound,

wherein a difference in the activity of said KCNQ2 polypeptide in the presence of said compound in comparison to the activity in the absence of said compound indicates that the compound is a modulator of said KCNQ2 polypeptide.

63. (Withdrawn) The method according to claim 62, wherein said candidate modulator compound is selected from the group consisting of a natural ligand, a small molecule, an antibody, an antisense RNA, an aptamer and a short interfering RNA.

64-86. (Canceled)

87. (Currently amended). A composition comprising at least one polypeptide comprising the amino acid sequence of SEQ ID NO: 2.

88. (Withdrawn) The composition according to claim 87, wherein said composition comprises a plurality of polypeptides.

89. (Withdrawn) The composition according to claim 88, wherein said plurality of polypeptides forms a potassium channel.